Investigation: Mean vs. Median in the Movies! NAME_____

Adapted from: Murdock, J., Kamischke, E., & Kamischke, E. (2007). *Discovering Algebra: An investigative Approach.* (2nd Ed.) Key Curriculum Press.

The following data set shows the number of people who attended a movie theater over a period of 16 days:

14, 23, 10, 21, 7, 80, 32, 30,
92, 14, 26, 21, 38, 20, 35, 21

Finding the measures of center:

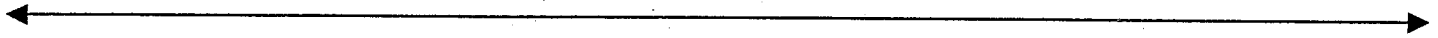
a.) What is the mean of the data set?

b.) What is the median of the data set?

c.) what is the mode of the data set?

Creating a representation for the data:

Create a number line in the space below and draw a dot plot for the data set.
Above the dot plot draw a box plot.



d.) Compare your dot plot and box plot. On which graph is it easier to locate the five-number summary? Which graph helps you to see the spread of data better? Which graph tells you how many data values there are? What do you believe are the disadvantages or advantages to both plots?

The theater's management wants to compare its attendance to that of other theaters in the area. Which measure of center best represents the data? To determine which measure of center best summarizes the data, look for patterns in the data and look at the shape of the graph.

e.) What is the shape of your graph? Where do most of the data values fall?

f.) Do you detect any outliers?

g.) Which measure best summarizes the data? Why?

h.) Why might the theater's management prefer to use the mean in an advertisement?

i.) What would happen to the mean and median if we removed the outliers?